CLAIMS

1. A method of making a rare-earth alloy powder for use to produce a rare-earth sintered magnet, of which a main phase has a composition represented by $R_2T_{14}A$ (where R is one of the rare-earth elements including Y; T is either Fe alone or a mixture of Fe and a transition metal element other than Fe; and A is either boron alone or a mixture of boron and carbon), the method comprising the steps of:

preparing a first rare-earth rapidly solidified alloy, which has a columnar texture with an average dendritic width falling within a first range, by subjecting a melt of a first rare-earth alloy with a first composition to a rapid cooling process;

preparing a second rare-earth rapidly solidified alloy, which has a columnar texture with an average dendritic width that is smaller than that of the first rare-earth rapidly solidified alloy and that falls within a second range, by subjecting a melt of a second rare-earth alloy with a second composition to the rapid cooling process;

making a first rare-earth alloy powder by pulverizing the

first rare-earth rapidly solidified alloy;

making a second rare-earth alloy powder by pulverizing the second rare-earth rapidly solidified alloy; and

making a powder blend including the first and second rare-earth alloy powders.

2. The method of claim 1, wherein the first range is equal to or greater than the mean particle size of the first rare-earth alloy powder, and the second range is less than the mean particle size of the second rare-earth alloy powder.

3. The method of claim 1 or 2, wherein the first range is from 3 μm through 6 μm.

4. The method of one of claims 1 to 3, wherein the second range is from 1.5 μm through 2.5 μm.

5. The method of one of claims 1 to 4, comprising the steps of: obtaining a first rare-earth alloy coarse powder by coarsely pulverizing the first rare-earth rapidly solidified

alloy; obtaining a second rare-earth alloy coarse powder by coarsely pulverizing the second rare-earth rapidly solidified alloy; making a blended coarse powder by blending the first and second rare-earth alloy coarse powders together; and obtaining the powder blend having a mean particle size of 1 μm to 10 μm by finely pulverizing the blended powder.

6. The method of one of claims 1 to 4, comprising the steps of: making a first rare-earth powder having a mean particle size of 1 μm to 10 μm from the first rare-earth rapidly solidified alloy; making a second rare-earth powder having a mean particle size of 1 μm to 10 μm from the second rare-earth rapidly solidified alloy; and obtaining the powder blend by blending the first and second rare-earth powders together.

7. The method of one of claims 1 to 6, wherein the first and second rare-earth alloy powders included in the powder blend have a volume percentage ratio of 95:5 through 60:40.

8. The method of one of claims 1 to 7, wherein the second rare-earth rapidly solidified alloy is made by a strip casting process.

9. The method of one of claims 1 to 8, wherein the first rare-earth rapidly solidified alloy is made by a strip casting process.

10. The method of one of claims 1 to 8, wherein the first rare-earth rapidly solidified alloy is made by a centrifugal casting process.

11. The method of one of claims 1 to 9, wherein the first rare-earth rapidly solidified alloy includes 30 mass% to 32 mass% of R.

12. The method of one of claims 1 to 11, wherein the second rare-earth rapidly solidified alloy includes 33.5 mass% to 35 mass% of R.

13. A method for producing a rare-earth sintered magnet, of which a main phase has a composition represented by $R_2T_{14}A$ (where R is one of the rare-earth elements including Y; T is either Fe alone or a mixture of Fe and a transition metal element other than Fe; and A is either boron alone or a mixture of boron and carbon), the method comprising the steps of:

preparing a rare-earth alloy powder by the method of one of claims 1 to 12;

compacting a powder material, including the rare-earth alloy powder, thereby obtaining a compact; and

sintering the compact.